

WHAT IS CLAIMED IS:

1. A wiring comprising a tungsten film, a metallic compound film having a tungsten compound as its main constituent, or a metallic alloy film having a tungsten alloy as its main constituent, wherein a taper angle α of said wiring is in a range from 5° to 85°.

2. A wiring comprising a lamination structure of laminated thin films selected from the group consisting of: a tungsten film; a metallic compound film having a tungsten compound as its main constituent; and a metallic alloy film having a tungsten alloy as its main constituent, wherein a taper angle α of said wiring is in a range from 5° to 85°.

3. The wiring according to claim 1 or 2, wherein said metallic alloy film is an alloy film of one element, or a plurality of elements, selected from the group consisting of Ta; Ti; Mo; Cr; Nb; and Si, and tungsten.

4. The wiring according to claim 1 or 2, wherein said metallic compound film is a nitride film of tungsten.

5. The wiring according to claim 2, wherein a lowest layer of said wiring is a silicon film having a conductivity.

6. A semiconductor device comprising a wiring made from a tungsten film, a metallic compound film having a tungsten compound as its main constituent, or a metallic alloy film having a tungsten alloy as its main constituent, wherein a taper angle α of said wiring is in a range from 5° to 85°.

7. A semiconductor device comprising a wiring made from a lamination structure of laminated thin films selected from the group consisting of: a tungsten film; a metallic compound film having a tungsten compound as its main constituent; and a metallic alloy film having a tungsten alloy as its main constituent, wherein a taper angle α of said wiring is in a range from 5° to 85°.

8. The semiconductor device according to claim 6 or 7, wherein said wiring is a gate wiring of a thin film transistor.

9. The semiconductor device according to claim 6 or 7, wherein said semiconductor device is an active matrix type liquid crystal display device.

10. The semiconductor device according to claim 6 or 7, wherein said semiconductor device is an EL display device.

11. The semiconductor device according to claim 6 or 7, wherein said semiconductor device is one selected from the group consisting of a video camera, a digital camera, a projector, a goggle type display, a car navigation system, a personal computer, or a portable information terminal.

12. A semiconductor device comprising:
a semiconductor layer over a substrate, said semiconductor layer comprising a lightly doped region adjacent to a channel forming region in said semiconductor layer; and
a gate electrode adjacent to said semiconductor layer with a gate insulating film interposed therebetween,

wherein said gate electrode comprises a tungsten film, a metallic compound film having a tungsten compound as its main constituent, or a metallic alloy film having a

tungsten alloy as its main constituent, wherein a taper angle α of said gate electrode is in a range from 5° to 85°.

13. The semiconductor device according to claim 12, wherein said semiconductor
5 device is an active matrix type liquid crystal display device.

14. The semiconductor device according to claim 12, wherein said semiconductor
device is an EL display device.

15. The semiconductor device according to claim 12, wherein said semiconductor
device is one selected from the group consisting of a video camera, a digital camera, a
projector, a goggle type display, a car navigation system, a personal computer, or a portable
information terminal.

16. A method of forming a wiring comprising the steps of:
forming a metallic thin film on a base film;
forming a resist pattern on said metallic thin film; and
forming said wiring by performing an etching of said metallic thin film having said
resist pattern,

20 wherein a taper angle α of said wiring is controlled in accordance with a bias power
density of an ICP etching device.

17. A method of forming a wiring comprising the steps of:
forming a metallic thin film on a base film;
25 forming a resist pattern on said metallic thin film; and
forming said wiring by performing an etching of said metallic thin film having said
resist pattern,

wherein a taper angle α of said wiring is controlled in accordance with a flow rate of a gas containing fluorine.

18. The method of forming a wiring according to claim 16 or ~~17~~, wherein said etching is performed using an etching gas comprising a mixed gas of a first reaction gas containing fluorine and a second reaction gas containing chlorine, and a specific selectivity in said etching gas between said base film and said metallic thin film is 2.5 or more.

19. The method of forming a wiring according to claim 16 or ~~17~~, wherein said metallic thin film is a thin film, or a lamination film of thin films, selected from the group consisting of: a tungsten film; a metallic compound film having a tungsten compound film as its main constituent; and a metallic alloy film having a tungsten alloy as its main constituent.

20. A method of dry etching comprising a removal by an etching gas of a desired portion of a thin film selected from the group consisting of: a tungsten film; a metallic compound film having a tungsten compound film as its main constituent; and a metallic alloy film having a tungsten alloy as its main constituent, wherein said etching gas is a mixed gas of a first reaction gas containing fluorine and a second reaction gas containing chlorine.

21. The method of dry etching according to claim 20, wherein said first reaction gas is a gas selected from the group consisting of CF_4 , C_2F_6 , and C_4F_8 .

22. The method of dry etching according to claim 20, wherein said second reaction gas is a gas selected from the group consisting of Cl_2 , SiCl_4 , and BCl_3 .

23. The method of dry etching according to claim 20, wherein said method of dry etching uses an ICP etching device.

24. The method of dry etching according to claim 20, wherein a taper angle α of said wiring is controlled in accordance with a bias power density of said ICP etching device.

25. A method of dry etching wherein a taper angle of an inside sidewall of a hole or a recess formed by said etching is controlled in accordance with a bias power density.

26. A method of dry etching wherein a taper angle of an inside sidewall of a hole or a recess formed by said etching is controlled in accordance with a specific gas flow rate.

27. The method of dry etching according to claim 25 ~~or 26~~, wherein said method of dry etching uses an ICP etching device.

28. A method of manufacturing a semiconductor device comprising the steps of:
forming a semiconductor layer over a substrate; said semiconductor layer comprising a lightly doped region adjacent to a channel forming region in said semiconductor layer;
forming a metallic thin film over a substrate;
forming a resist pattern on said metallic thin film; and
etching said metallic thin film having said resist pattern, thereby to form a gate electrode of a thin film transistor,
wherein said gate electrode comprises a tapered shape having an taper angle from 5° to 85° .

29. The method of manufacturing a semiconductor device according to claim 28, wherein said semiconductor device is an active matrix type liquid crystal display device.

